



the CARRIER.....

Published Monthly by the Mount Diablo Amateur Radio Club

MDARC FIELD DAY CALL W6CX; 2M REPEATER WR6AHK; 220 REPEATER WR6ARG; MEMORIAL CALLSIGN W6LGW
Volume XXVI September 1978 No. 9

PRESIDENT.....	WA6OJT Dick Webster 3415 Sweet Dr. Lafayette CA 94549	284-2046
VICE-PRESIDENT.....	WA6IRZ Stan Bringer 1920 Gilly Ln. Concord CA 94518	689-0989
SECRETARY.....	WB6FOA Salley Nikkel 778 Harvard Dr. Pleasant Hill CA 94523	
TREASURER.....	WA6TML John Clyde 94 Meadow View Rd. Orinda CA 94563	254-7384
EMERGENCY COORDINATOR..	W6LKE Dwayne Eskridge P.O. Box 5502 Walnut CR. 94596	932-3971
BOARD MEMBER '77 & '78.	WA6GBB Bob Muench 836 Santa Maria Way Lafayette CA 94549	284-5445
BOARD MEMBER '78 & '79.	W6PFW Ted Durst 9 San Ardo Ct. Walnut Creek CA 94598	937-1463

Committees: Education Ch. WA6MWU; Door Prize Ch. WB6TZQ; Membership Ch. WB6BIX; TVI Committee K6DQL, K6IMV, N6GQ, K6VLH; Repeater Grp. Ch. WB6PUA; Rptr. Grp. Treas. WB6DHH; Publicity Ch. WB6JGV; Novice Net WD6CGS. The CARRIER folders and stampers for August were Fred and Beth Sabott, Parky and Lee Parkinson, Frank and Alma Calton, Harold and Mildred Mumford. Please mail, phone, or give all articles for the CARRIER to Managing Editor Hal Mumford W6CU, 1271 Walker Ave. Walnut Creek, CA 94596 phone 934-4728 by October 4 to get into the october CARRIER. Articles in the CARRIER can be quoted freely without asking permission.

* * * MEETING NOTICE * * *

The regular monthly meeting of the
MT. DIABLO AMATEUR RADIO CLUB
will be held at our usual meeting place:

GRACE PRESBYTERIAN CHURCH
2100 Tice Valley Blvd., Walnut Creek
September 15, 1978 8 p.m.
"THE THIRD FRIDAY OF THE MONTH"

PROGRAM

A TALK BY
ED GRIBI WB6IZF
Santa Clara Valley SCM
on
Amateur Radio Communications
during the
MARBLE CONE FIRE

Visitors are welcome

PLEASE DO NOT SMOKE IN THE CHURCH BUILDING
USE THE SQUARE FLOWERPOT TYPE RECEPTACLES
OUTSIDE THE BUILDING FOR CIGARETTE ASHES

Check with WA6OJT or WA6IRZ (phone numbers
above) if you would like to meet and eat at
Pipers Restaurant prior to the meeting @ 6 p.m.

SOME OTHER HAPPENINGS

(1) The Mt. Diablo Amateur Radio Club
Radio Classes are scheduled to start 7 p.m.
September 19. College Park High School is
being firmed up for the location of these
classes but Proposition 13 may complicate
things. Refer to other pages of this CARRIER
and announcements at our September meeting for
further details. Also phone Chuck Welch WA6MWU
676-5262. Volunteers so far include VE2AQV,
WB6KWW, WD6CGS, KA6BPN, WA6KGI, WB6PUA.

(2) ARRL National Convention, San Diego
Calif., September 22-24.

(3) Communications for American Cancer
Society Walk-a-thon, September 24.

(4) MDARC Board Meeting September 25.
QTH WD6APL.

(5) MDARC AUCTION October 20, 1978

(6) Christmas Party plans are beginning
to take shape. Members who are on the Christ-
mas Committee include: WA6ODA, VE2AQV, WB6EKT,
WA6JUD, YL Joanne (WA6GBB) and others.

M.D.A.R.C. Meeting August 18, 1978

Club was called to order at 8:05 p.m. by President Dick Webster WA6OJT. A number of first time visitors were introduced and a great number of amateurs announced that they had upgraded. Our Club now has 293 paid members.

In the absence of the treasurer, Dick reported the Club has \$1,013.30 in checking and \$644.55 in savings.

Dwayne W6LKE gave the Emergency Coordinator report: Sept. 3 - Communications for Valley Spokesmen's Bike Ride. See Ron Miller WB6JGV. Sept. 10 - Walnut Festival. See Dwayne W6LKE. Sept. 24 - American Cancer Soc. Walk-a-thon. See Art VE2AQV.

Ed Gribi WB6IZF will be the September meeting speaker.

Chuck Welch WA6MWU, announced classes will start Sept. 19. The location is yet to be decided. Help is greatly needed. Jim Presley WD6CGS announced the Club Picnic is Aug. 20. A motion was made and carried that the Club spend \$150.00 for class supplies.

A motion made and carried that the Club pay the \$100 insurance premium and collect \$50 from the Repeater Group for half of the premium.

Harry, WB6BIX announced that he has a number of name tags. Those who have ordered, see Harry.

Motion made and carried that we adjourn at 8:25 for coffee.

At 9 p.m., Stan WA6IRZ introduced our good member Chuck Welch WA6MWU, who entertained all of us with his fine film of his trip to Japan. A very fine Presentation enjoyed by all.

Respectfully submitted

Salley Nikkel WB6FOA
Secretary

- o o o o -

M.D.A.R.C. BOARD MEETING AUG. 28, 1978

The Board Meeting was called to order at 8:10 p.m. in the Red Cross Bldg. by President Dick Webster, WA6OJT. The following board members were present: WA6IRZ, WB6FOA, W6LKE, WA6GGB. The following faithful and interested members of the Club were present: N6GQ, K6VLH, K6IMV, WA6MWU, WB6AEG, WA6JLF, W6CU, VE2AQV, & WD6APL.

The treasurer was not present and there was no report.

Addition to last month's board meeting minutes: The semi annual audit of 1978 and the 1977 annual audit have been completed. The motion made and carried that the minutes as corrected be accepted. (Change W6PNO to WA6PNO)

Emergency Coordinator, Dwayne W6LKE, gave the board a tour of the future Club Ham Shack at the Red Cross Bldg. and also the Red Cross Communication station.

The September Club Meeting will have Ed Gribi, WB6IZF presenting slides on the Marble

Cone Fire.

Education Comm. Chuck WA6MWU reported the following will help with the Fall Radio Classes: Art VE2AQV, Arvel WB6KWW, Jim WD6CGS, Russ KA6BPN, Jay WB6PUA, Jack WA6KGI and many others.

Joe WD6APL will contact the College Park High School to check on the cost of the use of the facilities for the radio classes.

Motion was made and carried that the Club purchase three AMECO code oscillators from the BASE STATION @ \$18 each plus shipping. Joe Campbell, WD6APL will purchase and donate one AMECO code oscillator for class use. The battery operated code oscillator will be disposed of at the next auction.

The TVI committee gave its report. They need a portable black and white battery operated TV in their TVI work. Motion made and carried that the Club purchase two TV 75 ohm HP filters for TVI use.

The Door Prize Committee is in good shape with advertising from M-Tron, The Base Station, and Ham Radio Outlet. The Nominating Committee for our 1979 officers are: Arvel Lankford WB6KWW, Art Mayoff VE2AQV, Paul Taylor WA6TXM, and others.

Repeater Report: The group voted to put a duplexer on the repeater and change the coax on 220.

Motion made and carried to accept into membership all new applicants.

Motion made and carried to authorize payment of additional charges requested by the Pleasant Hill Recreation Department due to proposition 13 for the Club Christmas Party. Christmas Party Committee: WA6ODA, VE2AQV, WB6EKT, WA6JUD, YL Joanne (WA6GGB) and others.

Next Board Meeting: Joe Campbell WD6APL.

October Board Meeting: Art Mayoff VE2AQV.

10:30 Board adjourned to refreshments by WB6FOA.

Respectfully Submitted

Salley Nikkel WB6FOA
Secretary

- o o o o -

MEMBERS #291, #292, and #293

Heard frequently on WR6AHK/WR6ACP, Gary Steinhour, WA8WGD has recently joined the membership ranks of both the MDARC and the RRRG.

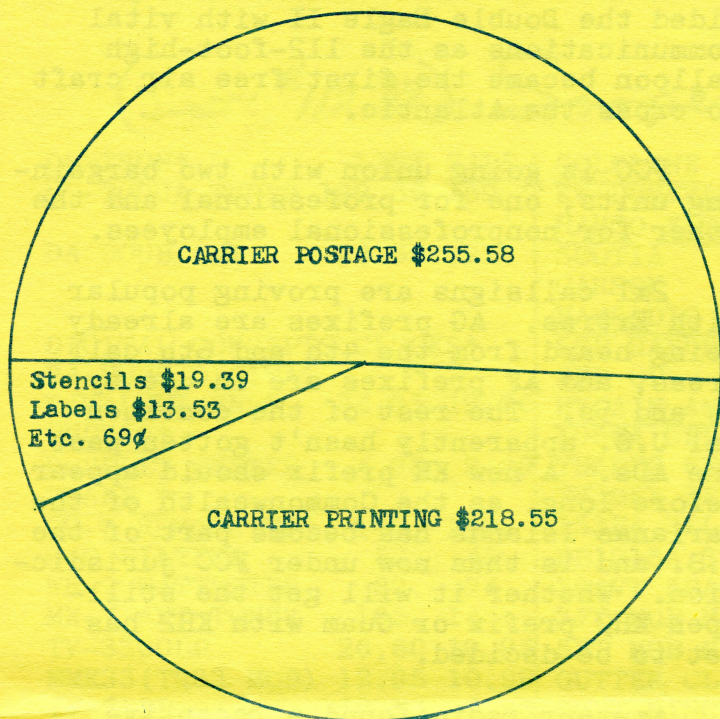
Alfred De Rosier, W6TWK, a new 'old timer', note the call, they are fast becoming unique, another recent joiner, not currently on the air, however, we are sure he is heading in that direction.

W6EEN, Doughty, also joined both the MDARC and the RRRG wimultaneously. The ability to join both groups at a meeting of the RRRG has not been widely known but has been approved by WA6OJT, the 'orange juice taster', not to be confused with that guy who plays football for the Forty-Niners.

W6AMH

CARRIER EXPENSES

For the first six months of 1978, total CARRIER expenses were \$507.74. \$255.58 went for postage, \$218.55 went for CARRIER printing, \$19.39 went for stencils, \$13.53 went for labels and 69¢ went for envelopes.

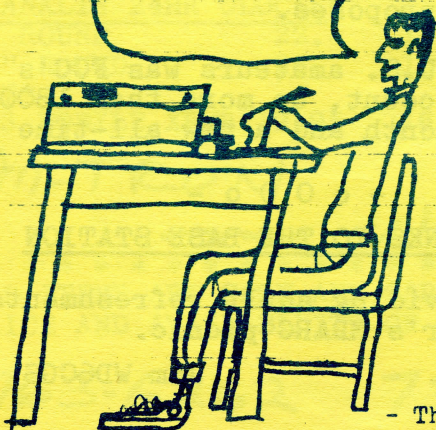


Printing was done by MIMO MAGIC in Alamo. MIMO MAGIC also printed the Washington Birthday Breakfast announcement for \$5.20, applications for \$7.75, and Radio Class announcements for \$5.35.

Starting with July, the CARRIER has been printed by Doug Lortsher W6KLM, a former member of the Club (about 1958 to 1968) who has joined the Club again.

- o o o o -

KA6AW? This is
WA6AK, QRZ?



- Thanks WA6KGI

WR6ACP UPDATE

In order to increase the usefulness of the Mt. Diablo WR6ACP VHF repeater, a new versatile control deck has been installed. Secondary VHF control problems should be eliminated along with the addition of new functions:

1) All control Touchtone will be muted to prevent rebroadcasting of control codes.

2) 10 minute idle circuit timer. At the end of 10 minutes of no operation the repeater will ID and then secure on secondary.

3) Primary control selectable lock-on timers with periods of 1 minute or 2 minutes 45 seconds with a warning tone for the last 15 seconds in the 2:45 mode.

4) Primary controlled selectable squelch tail length with a mute lock-out option.

5) ID period has been increased to 10 minutes as permitted by recent FCC regulations.

6) Autopatch facilities are available.

Since telephone patches are for emergency only, it would appear that WR6ACP/VHF and WR6ARG would be compatible sharing the same existing phone line. Therefore, it is proposed that WR6ACP/VHF be allowed to "bridge" into the existing WR6ARG phone line.

New control codes will be available from your repeater chairman.

In the near future a new high gain VHF antenna will be installed to replace the old well-used array. The new antenna will increase the coverage and fill in more of the pattern holes now evident.

W6HOF, K6POU

- o o o o -

PICNIC RESULTS

I wish to thank all who came to this year's MDARC picnic. I would say somewhere around 50-60 people attended and the day went very smooth. The weather was nice enough that even the wind that came up didn't keep people out of the pool.

Thanks to all who helped in making this year's picnic a success and I would personally like to thank Ron Miller (WB6JGV) for securing the academy facilities for the Club.

Hope to see you next year!

73

Jim WD6CGS

INCOMPLETE LIST OF UPGRADINGS
(mostly heard from the back of the room at our last meeting and therefore subject to error)

WD6APL is G, WD6DKW is G, W6TLJ is E,
KA6BPN is T, WA6UDZ is A, WB6TZQ is E, WA6JUD
is E, WA6TEZ is T, etc.

SILENT KEY

It has been reported that Murray Douglas
W6CUG died last month. He was a charter mem-
ber of the Mt. Diablo Amateur Radio Club but
not on our current membership list.

Ham Radio Outlet

999 Howard Avenue
Burlingame, CA 94010

(415) 342-5757

Hours: 10 AM to 5:30 PM Monday-Saturday

OUR ONLY BUSINESS IS HAM RADIO!!!
and remember...

HAM RADIO OUTLET IS NORTHERN CALIFORNIA'S
ONLY AUTHORIZED KENWOOD DEALER!

SUPER KENWOOD SPECIALS FROM HAM
RADIO OUTLET....JUST FOR YOU!

- 1) TS-820S and VFO-820.....\$1098.00
- 2) TS-520S and HyGain 18AVT..\$739.00
- 3) TR-7400A and Astron 12A...\$399.00
- 4) The SUPER VHF SPECIAL:

-TS700SP all mode 2m...\$729.00
AND GET THE FOLLOWING FREE---

- A147-11 Cushcraft 11 elements
- Alliance U-100 rotator
- 5 foot steel mast
- 100 feet RG8 Superflex
- 100 feet rotator cable
- Two Teflon PL-259 plugs

A COMPLETE PACKAGE...CAN BE MOUNTED ON
A STANDPIPE OR ABOVE YOUR TV ANTENNA..
BUY YOURS NOW...THIS IS THE HOT SETUP
FOR SUMMERTIME TWO METER WORK....

\$729.00 COMPLETE...ONLY RIGHT HERE
AT HAM RADIO OUTLET. CALL TODAY!!!

ALL ITEMS SHIPPED FREE VIA U.P.S. IF
YOU'D RATHER NOT MAKE THE DRIVE....

PORTIONS OF HR REPORTS

During torrential rains that brought
death and destruction to south and cen-
tral parts of Texas, amateurs served a
vital role.

Balloon mobile amateur radio pro-
vided the Double Eagle II with vital
communications as the 112-foot-high
balloon became the first free air craft
to cross the Atlantic.

FCC is going union with two bargain-
ing units, one for professional and the
other for nonprofessional employees.

2x1 callsigns are proving popular
with Extras. AG prefixes are already
being heard from the 4th and 6th call
areas, and AF prefixes are in use by
2s and 5s. The rest of the continen-
tal U.S. apparently hasn't gotten past
the ADs. A new KH prefix should appear
before long, as the Commonwealth of the
Marianas Islands has become part of the
U.S. and is thus now under FCC jurisdic-
tion. Whether it will get the still-
open KHØ prefix or Guam with KH2 has
yet to be decided.

Amateur radio found a receptive
audience at the hearing in Chicago on
the revision of the Communications Act
of 1934. Barry Bayer, K9CFV, an attor-
ney and a director of the Chicago FM
Club, highlighted amateur contributions
in both public service and technology,
and made four specific recommendations
of change pertinent to amateurs: 1. The
new act should include a comprehensive
definition of Amateur Radio; 2. Amateur
Radio should be exempt from the new
act's secrecy provisions; 3. Amateurs
should be permitted to provide communi-
cation services to nonprofit organiza-
tions; and 4. Amateurs should be
exempt from the spectrum user's fees
the new act proposes.

348,561 U.S. amateurs was FCC's
end-of-July count, up more than 1800
during the month and a new all-time
high.

- o o o o -

MANY THANKS TO THE BASE STATION

For providing adult refreshments
at this year's MDARC picnic.

Jim WD6CGS

Collins KWM-2 w/PM2 + A-MULT (used) (Reg. 714) Sale \$599.-

M T R O N

Super Sale

Tektronix 545 w/dual trace plug-in, cart + books (list 450) Sale 395.-

Devoted Exclusively To Amateur Radio

2811 Telegraph Ave. Oakland, Ca. 94609 (415) 763-6262

~~Nothing Sold at List Price~~

~~Every Item Reduced To Save You Money~~
~~Cash VISA~~ New Equipment and Accessories ~~BAC~~ ~~Mc~~

AMELCO *	LIST	SALE	ARRL*	LIST	SALE	B&W*	LIST	SALE
SWR METERS	19.95	12.95	RFI HANDBOOK	3.00	2.50	374 DLX DL	215.	185.
LIGHTER PLUGS	5.99	2.99	TUNE THE WORLD	7.00	5.99	DP-2 SW PLATE	1.85	1.50
ALL MIC PLUGS	1/2 OFF!		MINILOGS	.75	.60	CALLBOOK		
AMECO*								
CODE TAPES	4.95	3.99	ATLAS RADIO*			MAP LIBRARY	3.75	2.99
CODE OSC. OCMW	17.95	11.99	350XL/DD6XL	1424.	1199.	WORLDZONEMAP	1.25	.99
ALL BOOKS REDUCED:			350PS	229.	189.	MAP NO. AMER.	1.25	.99
THEORY COURSE	4.95	3.99	210X TCVR	765.	649.	TELEX* HEADSET	13.50	11.
LOGBOOK	1.25	.75	215X TCVR	765.	649.	CALPICO GR. ROD*	6.95	5.99
6-01 CODE	1.00	.69	MT-1 MATCHER	29.	24.	CORNELLDUBILIER*		
5-01 LIC. GUIDE	1.50	1.10	DCC DC CABLE	14.	9.99	CD44	154.95	95.00
17-01 EXTRA	1.50	1.10	DMK-XL MOB MT.	65.	55.	TAILTWISTR	349.95	229.
11-01 TRANSIS.	2.50	1.75	DCC-XL DC CABLE	14.	9.99	100AMP ALTFIL	12.95	6.99
ANTENNA SPECIALISTS*			DL-200 DUMMY	15.	11.99	200AMP "	18.90	9.99
HM4 RUB DUCK	7.50	5.99	MBK MOB MT BKT	7.	4.99	COLOMBIA COAX*		
HM5 "(PL259)	7.50	5.99	DMK MOB MT	55.	45.	RG58A/U SUPER	.14/FT	.10/
HM-228 (F-CON)	10.50	8.00	CLC CIG CABLE	14.	9.99	8WIRE ROTCABLE	.15/FT	.12/
M3B 10M WHIP	9.95	6.99				18"RG58 JUMPRS	4.50	1.99
M-206 MOB BKT	12.59	7.99	AVA COAX CONNECTORS*			3'RG8 JUMPERS	5.75	2.99
ARRL*			M-359 RIGHT ANGLE	2.50	1.99	COWAN BOOKS* (CQ)		
HANDBOOKS	8.50	7.99	DM DOUB. MALE	2.50	1.99	RTTY A-Z	5.00	3.99
SPEC. COMM.	4.00	2.99	UG224 FEEDTHRU	3.95	2.25			
SOLID STATE BAS.	5.00	4.25	UG176 RG59ADAPT.	.35	.25	CURTIS KEYERS*		
VHF HANDBOOK	4.00	2.99	1021-20 239/RCA	1.95	1.25	EK-430	124.95	105.
HINKS & KINTS	4.00	2.99				8043 CHIP	14.95	12.50
UNDER. AM. RAD.	5.00	4.25	PL258 DOUB. FEM.	1.50	.99	8043-3 W/BOARD	24.95	20.99
			UG-273 BNC/259	2.40	1.75	8043-4 KIT	54.95	44.99
COURSE FUND.	4.00	2.99	RG14 END PLUG	11.50	2.50	CUSHCRAFT*		
OPER. GUIDE	4.00	2.99	BENCHER*			ARX-2 2M VERT	36.95	29.00
IC HANDBOOK	2.00	1.50	BY-I KEYPAD PADDLE	39.95	33.95			
DATA HANDBOOK	4.00	2.99	B&W*			AR220 VERT	23.95	18.99
						A449VPK STACK	26.95	22.99
SOLID STATE DES.	7.00	5.99				A432-20T TWIST	54.95	45.
			592 " 2POS.	16.50	13.99	A144-20T "	59.95	49.
			AT-200 2M ANTNR	22.50	16.99	A144-10T "	39.95	33.

~~We accept pre 1964 US dimes, quarters & halves at~~
~~3 times face value towards your purchases~~

New Hours: Tues-Fri 10AM-6PM & Sat. 10AM-5PM
Closed Sunday & Monday

Sept 78-1

M-TRON Super-Sale Write-Phone
all prices reduced - Come in now & Save
in Super Oscar Package - Cushcraft {*a144-10T*
a432-20T}
a14TMB

(List: \$112.85) Super Sale Price \$84.95

DENTRON*	LIST	SALE	GOLDLINE *	LIST	SALE	MAGNADYNE *	LIST	SALE
MT-2000A TUNER	199.50	169.	KW DUMMYLOAD	29.95	20.	SLIDE MT TOPS	4.50	.50
DA DOUB ANT	24.50	21.	HAMCO KEYS PADDLES *			MFJ *		
			SCOTIA	54.95	45.	I2VDC PWR SUPPLY	27.95	19.
			CARSON	74.95	59.	NEWTRONICS HUSTLER *		
			HAMRADIO PUBLICATIONS *			4BTV 4BANDVERT	99.95	75.
DIGITAL CONCEPTS CLOCKS*			SSB HANDBOOK	4.95	3.50	RM-80S 80M RES.	30.40	20.
24 HOUR DIGITAL			2ND OP	3.50	2.50			
W/WALNUT ENDS	34.95	19.95	HYGAIN ANTENNAS *			RM-75	15.50	11.
BUDWIG*			I05BA 5EL 10M	119.95	89.	MO-1 MAST	22.	18.
DOUBLET CENTER	4.95	3.99	TH6DXX 6EL TRI	296.95	209.	GCM-1 GUTTER MT	9.	5.
DRAKE *			TH3MK3 3EL TRI	219.95	169.	NPC POWER SUPPLIES *		
RV-7 REMOTE VFO	156.	139.	153BA 3EL 15M	79.95	65.	I08RM 8AMP W/MTR	99.95	65.
R4C FILTERS	52.	45.	DB1015A 3EL DUO	149.95	125.	PIPO TOUCHTONEPAD*		
WH-7 WATTMETER	89.	74.	18AVT 5BANDVERT	97.	79.	PP2K 16 BUTTON/RLY	69.	55.
MN-7 ANT TUNER	165.	145.	3FT MOB MAST	17.95	14.	RF ENGINEERING *		
TV-3300LP	26.60	19.95	5FT MOB MAST	19.95	16.	DIG DISPLAY(R4C)	180.	139.
MMK33(TR33 MOB)	12.95	10.99	GUTTER CLIPS	2.95	2.	SUPEREX HEADPHONES *		
TV-75HP	13.25	8.95	QUIK DISC.	7.95	6.	APS-II DLX	29.45	25.
B-1000 BALUN4:1	24.95	21.00	RUBBRDUCK(BNC)	9.	7.	COM-2	19.95	15.
UV-3 144 2M FM	595.	499.	RUBBRDUCK(259)	7.	5.			
PS-3 AC PS	89.95	75.	3806XTALS 2M	6.95	4.	TELCO FREQUENCY COUNTERS*		
MS-7 SPEAKER	33.	29.	TEN-TEC*670 KEYS	29.	25.	COUNT500 500MHZ	170.	119.
TV-42LP	14.60	11.99	ICOM*			COUNT 40 40MHZ	130.	89.
TV-300HP	10.60	7.99	IC-701 WACPS	1499.	1275.	TEN-TEC *		
34PNB(TR4CW NB)	100.00	85.	IC3PE AC PS (245)	89.	65.	509 ARGONAUT	369.	310.
6JB6 TUBES	5.00EA	9./PR	K.E. *			570 CENT 21	299.	255.
DX ENGINEERING *			SQ AUTO KEYS	47.95	39.	276 CALIB.	29.	25.
RF SPEECH PROCESSOR FOR			T-7 40M TRAPS	24.95	19.	1170 CIR. BKR	8.75	7.
DRAKE TR4C/CW	128.50	99.	UB80/40 TRAPDOUB	39.95	35.	208CW FILTER	29.	25.
ELECTROSPACE *			UB-1 BALUN 1:1	11.95	10.	KR1A KEYS PADDL	35.	29.
HV-3 VERTICAL	169.90	119.				KR2A " "	17.	14.
160M COIL	39.95	29.	KLM ANTENNAS & AMPLIFIERS*			TRI-EX TOWER MASTS *		
2000C STEERING	250.	199.	144-148-16C 2M	75.95	65.	AD50 5FT 2" GALV	23.	19.
TE701 OMEGA NBR	34.95	29.	420-470-2	24.95	19.	TURNER PLUSTWO MIC *		
FRANKLIN 24HR CLOCKS*			PA2-25B 2M AMPL	72.95	59.	DESK MICROPHONE	45.	25.
8" ROUND	22.	14.	PA10-40B 2M AMP	83.95	69.	WILSON WR1000 HEAVY DUTY		
12" ROUND	25.	16.	PA10-70CL 450AMP	249.95	199.	ANT. ROTATOR	515.	329.
SST*			LARSEN VHF MOBILE ANTENNAS*			LARSEN 1/4W MAGMOUNT 2M		
T-3 MOBILE XFMR	19.95	16.	5/8 MAG MOUNT	38.45	32.	MOBILE ANT.	16.65	13.

M-TRON

2811 Telegraph Ave. Oakland Ca. 94609

We Save you Money

 ALL ITEMS ARE CASH AND CARRY OR FOB OAKLAND, CA - SALE LIMITED TO STOCK ON HAND
 PRICE AND AVAILABILITY OF ALL ITEMS SUBJECT TO CHANGE WITHOUT NOTICE - THANK YOU!

763-6262 73 Doug-W6HVN 763-6262

EQUATING AN EARTHLY EVENT TO A HEAVENLY EVENT

By Hal Mumford W6CU, Editor

It is possible for a simple happening on earth to resemble a happening of larger dimensions in outer space.

Take a bucket of water and rotate it around your head without spilling it. How fast do you have to make it go? There are three equations that you use to calculate this:

(a) First, there is the equation relative to gravitational pull. (b) Second, there is the equation relative to centrifugal force. (c) Third, there is the equation relative to how fast the bucket travels as you make your arm go around. Put these three equations together in the right way, and you will know how fast (maximum rotation time) you must whirl your arm around for the water barely not to fall out.

These three logical and almost self-evident equations are the very same ones you use in calculating the time it takes a satellite to go around the earth in a circular orbit.

These equations are:

$$(a) \quad F_1 = \frac{GMm}{d^2}$$

$$(b) \quad F_2 = \frac{mv^2}{r}$$

$$(c) \quad v = \frac{2 \pi r}{t}$$

F_2 (centrifugal force) has to be equal to F_1 (gravitational force). Make (a) and (b) equal to each other, and m (the mass of the rotating object) cancels out. Then hook in (c) eliminating v (velocity). t is the time in seconds for one revolution.

When you do this for the bucket of water:

$$t = 2 \pi \sqrt{\frac{rd^2}{GM}}$$

where r (the radius) is almost the same as the length of your arm in centimeters, d is the approximate radius of the earth in centimeters (637,838,800), G is the Universal Gravitational Constant (6.658×10^{-8} dynes). Nobody knows why there is such a thing as gravity or a Universal Gravitational Constant. Its value has been determined by careful experiments. M is the approximate mass of the earth in grams (6×10^{27}). A convenient and maybe more accurate thing to do in these calculations is to use 3.986032×10^{20} as the product of GM . For the bucket trick, t calculates out to about 2 seconds.

For a satellite, the equation turns out to be:

$$t = 2 \pi \sqrt{\frac{r^3}{GM}}$$

In this equation, r (the radius - equal to d) is the approximate distance (in centimeters)

between the center of the earth and the satellite. t (again in seconds) tells us how long it takes the satellite to go around the earth once. If r is 7.831083×10^8 centimeters, t is pretty close to 6900 seconds or 115 minutes like Oscar 7. Like the bucket calculation, t does not depend upon the magnitude of m (the mass of the rotating object).

From this satellite equation, the equation for h (height of the satellite above the surface of the earth in miles) which was in last month's CARRIER, can be derived. The other equations in last month's CARRIER can be verified with some cogitation and with the aid of a good High School plane and spherical trigonometry textbook.

That's fun to do too.

- o o o o -

TWO EASY CALCULATIONS

An old encyclopedia says that the moon's mass is $1/81.56$ that of the earth's mass and the moon's diameter is .27227 times that of the earth's diameter. Using these values, or better ones, and revising the values for M , d , & r (as necessary), it might be interesting to make these calculations:

Bucket Trick on the Moon: An astronaut on the moon whirls a bucket of water around his head in a circle that has a radius of one meter. For that situation, what's t (time in seconds for him to whirl his arm around so the water barely doesn't fall out)?

Oscar 7 and the Moon: If Oscar 7 should go around the moon in a circular orbit the same height above the surface of the moon as it has been going above the surface of the earth, how long would it take for the satellite to make one revolution?

- o o o o -

DON'T JUST STAND THERE!

SAY YES

WHEN THE NOMINATING COMMITTEE

FOR 1979

ASKS YOU TO RUN

or better yet

DON'T WAIT FOR THEM TO ASK YOU!

RADIO CLUBS AND AMATEUR RADIO

By W6ZRJ, from CCRC Circle about 1973

Amateur radio is an avocation for individuals, since we participate most often by operating our own radio stations. But one of our greatest potentials for the preservation and advancement of ham radio is the local radio club. Many amateurs do not belong to a local club for one reason or another. But when amateur radio is attacked by outside interests, our best local defense is most often provided by a well attended radio club. Do you participate in your local club? How strong is your local club? Is your local club connected with the local Red Cross or CD organization? How good is your public relations through your local radio club? These are important questions about any local club. If your club is weak in any of these areas, how about taking a part to advance these important areas of amateur radio? The local radio club can be our strongest local defense against attacks regarding antenna height restrictions and other local ordinances that affect amateur radio operation. Please join your local club if you are not now a member.

- o o o o -

Note by the Editor-Typist, W6CU: The bigger print in this month's CARRIER, like the column on the right, was typed with a different typewriter while I was visiting my daughter in Newport Beach over the Labor Day weekend. Now, we are back at our home QTH and this is the last 1/2 page of this month's CARRIER that is being typed.

What I will type will be a partial quotation from an article that was reprinted in the August 1973 AMATEUR RADIO NEWS SERVICE BULLETIN. I'll just keep going until the end of this column.

THE WAY IT GOES

By Julian Jablin, W9IWI. From York RC Circuit Board

Solid state gear may have its virtues, but the old fashioned tube equipment had advantages that a handful of ICs on a printed circuit board can't match.

When a transistorized piece of equipment does not work, it just does not work. No clues. No way to start finding out what's wrong. No helpful hints out of the gear itself.

Now an ancient radio with a bunch of 6AG7's a lot of condensers (that's right ... condensers) and resistors under the chassis and a power transformer off in the corner was a gold mine of information when it stopped going. Did the tubes get warm to begin with? If one or more were cold, there you were right away - yank it out, check the filament. And all those resistors; nothing was as handy as a resistor burned black to point the trouble. Replace the resistor! If the new one burned up too, look a little farther.

FARS WINS 1978 CCRC FIELD DAY TROPHY

Once again, for the third straight year, the Foothill Amateur Radio Society (FARS) has won the coveted Annual CCRC Field Day Trophy. Using 4 transmitters, FARS ran up an imposing CCRC total of 4,538 points. A very close runner-up was the Palo Alto Amateur Radio Association (PAARA), using 3 transmitters, with 4,214 points. These were followed by the San Francisco Radio Club (SFRC) with 8 transmitters and 2,981 total CCRC points; the Mount Diablo ARC using 7 transmitters for a CCRC total of 2,642 points; the Electronics Museum ARC (EMARC), using 3 transmitters to amass 1,473 points. These five clubs were followed in order by the San Mateo ARC, the Northern Peninsula Electronics Club (NPEC), and the Southern Peninsula Amateur Radio Club (SPARK).

All delegates reported that member clubs had a great time on Field Day, and each group thinks it learned a lot about emergency power operation that it didn't know about before. As one of the non-winning delegates was overheard to say, "Just you wait 'til next year!"

- Taken from the CCRC CIRCLE

— —

From the AMATEUR RADIO CLUB BULLETIN of the Lockheed Employees Recreation Club

. If you experience extreme difficulty in understanding any question or answer in any FCC Amateur Radio licensing examination, you can help rectify the situation by writing to Bob Kite, FCC, Personal Radio Division, Room 5114, 2025 M Street NW, Washington, D.C. 20554. Describe the specific question or answer as accurately as possible and tell Bob which licensing exam you were taking (Novice, General, etc.). Pass this information along to every Amateur or would-be Amateur who voices a complaint about an exam.

— —

From a LETTER TO THE EDITOR

One of our members, Nubar Tashjian who is an attorney in Oakland wrote us August 18 saying "I have enclosed a copy of a brochure from the Personal Communications Foundation, received hot off the press today, which really takes a sensible attitude regarding zoning ordinances and building codes"

This ANTENNA INFORMATION BROCHURE is presently on file with the editor of the CARRIER.

For Sale: KDK FM 2015R 2 meter
transceiver \$400 plus tax

DLK Enterprises
P.O. Box 3126
Walnut Creek, CA 94598
Home Phone 825-1774

— . . . —

For Sale: Heath SB610 Monitor Scope
\$60

WB6AEG 934-1789

— . . . —

For Sale: Yaesu FT227R Synthesized
2 meter FM "Memorizer" - 4 months old
Best offer

Steve Smith WA6SOC
Phone 228-8491

— . . . —

For Sale: Motorola L41GGB base station
less power transformers, Motorola G series
strips in 10" housing in 40-50 MHz. Would
make good 30 watt 6 meter base. \$30

General Electric Progress Line 42-50 MHz
transistor powered mobile, 60 watts 2 trans-
mit channels, 4 receive. Very clean with
all cables head etc. Ready to install. Make
good 6 meter mobile. \$60

Military TS-497A/U signal generator,
military version of the Measurements model 80,
400 to 470 MHz coil set added to give 5 to
470 MHz coverage with very accurate output
calibration. With Manual \$135

Military BC-221 frequency meter with
manual, ac supply \$30

Bearcat Model 210 microprocessor
controlled scanner, covers communications
channels from 32 to 516 MHz without crystals.
One year old, perfect condition. \$225

Wendell Peterson, K6POU, 934-2962

— . . . —

QST SUBSCRIPTIONS & RENEWALS \$12.00
WORLD RADIO SUBSCRIPTIONS \$6.50

Make check out to the Club. Give or
mail to our treasurer John Clyde 94 Meadow
View Rd., Orinda, CA 94563

— . . . —

Nametags \$2.00

Make check out to the Club and give or
mail to Harry Howe, 5 Las Vegas Road,
Orinda, CA 94563.

— . . . —

For Sale: February 1929 QST with a torn &
detached front cover and a torn back cover.

\$5

Hal Mumford W6CU 934-4728

The Base Station

Yaesu FT901 DM Reg.	1459.00	Cash	1386.05
Yaesu FT101 EX			699.00
Yaesu FT101 EE			759.00
Yaesu FT101 F			799.00
Yaesu FRG-7 Reg.	370.00	Sale	349.00
Yaesu FRG 7000 Digital Receiver			
Reg. 655.00	Introductory Price		629.00
Yaesu Phone Patch			64.00
Yaesu Dummy Load			78.00
Kenwood TS 820		Cash	873.05
Kenwood R5990 or T599D Each		Cash	521.55
ALDA 103 Solid State XCVR			495.00
ATLAS 350XL Digital Reg.	1425.00		
		Cash	1281.60
Dentron MT 3000 Reg.	350.00	Cash	315.00
Dentron Junior Monitor			79.50
2 meter Linear/Amplifiers			
KLM 10 in 70 out Reg.	\$150	Cash	134.95
KLM 10 in 140 out Reg.	216	Cash	194.35
TPL			
1-5 in 60-80 out			179.95
10-20 in 50-90 out			149.95
MOSLEY			
TA33 Jr. Reg.	197.00	Sale	149.95
TA33 Sr. Reg.	264.00	Sale	206.00
TA40K R Reg.	119.50	Sale	92.25
NEWTRONICS 5/8 wave			
2 meter w/coax, mount, etc.			28.95
Wilson 2202 220 hand held (1 left)			
Reg.	275.00	Sale	250.00
Tempo 8020 Spkr for 2020			
Reg.	30.00	Sale	25.00
Midland 13-509 220 xcvr. The price			
is going up 20.00. Three left at			159.95
DSI Frequency Counter to 500 MHz			149.95
AUTEK Electronic Memory Keyer			99.95
MFJ econo Keyer			39.95
MFJ CW Filter			29.95
MFJ 160-10 Tuner			49.95
CLEAN USED GEAR			
National NC 303			199.00
Drake 2NT Novice xmtr w/xtals			99.00
Drake T4XC w/p.s. & MS4 spkr			595.00
Dentron 160-10 Super Tuner			99.95

THE BASE STATION still offers a
showroom where you can TRY OUR GEAR
before you buy - We still carry a
complete line of accessories - All
this and low prices too.

The Base Station

2101 Pacheco St. Concord, CA 94520

(415) 685-7388

LAST MONTH'S PROBLEM

How much coax is needed will be the tower height plus the distance from the base of the tower to the shack. The tower is 624 feet high. The angle of elevation relative to the ham shack and the top of the tower is 53° . The cotangent of 53° is 0.754 (distance from the tower base to the shack divided by 624). The distance from the base of the tower to the ham shack comes out to be 470.496 feet by multiplication. 470.496 plus 624 is 1094.496 feet of coax cable needed.

-WA6KGI

THIS MONTH'S PROBLEM

Can you answer the following questions without looking them up? You should be able to.

1. Which volume and part of the FCC rules and regulations governs the amateur radio service?

2. Which is more desirable for standard rag chews, A3J or A3H?

3. Is the communications act of 1934 national or international?

4. Is QRM reduced by good operating habits or is QRN?

-WA6KGI

From:
Mt. Diablo Amateur Radio Club, Inc.
P.O. Box 23222
Pleasant Hill, Calif. 94523

Affiliated with the ARRL
Affiliated with the American Red Cross
Member: Amateur Radio News Service

FIRST CLASS MAIL

This month's distribution:

Members	297
Exchanges with other clubs	17
Worthy organizations and firms	12
Visitors at our last meeting	4
This month's speaker	1
Special Request	1
Copies for our files	2
Extra copies for possible handouts	8
	<hr/> 342
Minus the "one to a family CARRIERS"	12
	<hr/> 330

To:

